REMARKS

Reconsideration of the outstanding Office Action is respectfully solicited.

Applicants respectfully traverse the rejection of claims based on 35 U.S.C. 112, first paragraph. Applicants provide on pages, after the signature page, excerpts of U.S.S.N. 09/968586 and of DE 37 29 114 A1 (translated); as presently advised, it appears that the specification of U.S.S.N. 09/968586 is a translation of German application DE 19914823A1 [and PCT case 00//00797 (now WO 00/59634). That German application DE 19914823A1 is incorporated by reference into the specification at page 1, paragraph [2] of the translation.

With respect to the Section 112 rejection, the U.S. PTO alleges, that, "The specification disclosed...that the retarding layer may be designed to be porous and consist of a bulk material. However, there is no disclosure or guidance as to what the chemical composition of such bulk material would be. [page 2 of the outstanding Office Action."

In applicants' view, the Patent Office appears to view the ***translated*** recitation "retarding layer" out of context. In context of the subject matter claimed, it is clear that the word is used as a diffusion barrier layer, or a throttle layer, as expressed in the PCT publication-Abstract, of the counterpart of the instant application. Moreover, it is used under conditions which present high heat environment(s). This is borne out by paragraph [18] at page 7 of the instant application; paragraph [18] at page 7 of the instant application [translation] recites,

> "The retarding layer deposited in the first sub region makes it possible in the inflow region ***to inhibit the diffusion of the reaction gasses*** flowing in and/or out. As a result, the catalytic recombination of the reaction gases is limited, which in turn ***leads to a limiting of the reaction temperature, even with high H2*** concentrations...."

That italicized description is also in the claims.

Accordingly, the disclosure teaches a person of ordinary skill the function of the retarding layer. Moreover, the specification teaches a person of ordinary skill the nature of the composition of the ***retarding*** layer of at least one embodiment : Please see page 18, paragraph [44] which recites,

"The catalyst system 2 has a panel –shaped design with a total thickness of at most 1 cm, in particular for a ***ceramic embodiment***.....The retarding layer 8 in this case is designed as a porous cover layer, which is deposited on the catalyst body 6."

In applicants' view, a person of ordinary skill is educated by the specification as to the composition of the 'retarding layer'. Applicants further note that the description of 09/968586---which corresponds to DE199 14 823.6, cited at page 1 paragraph [2] of the instant application—contains the following information, attached hereto as pages following the signature page. The specification of the instant application also refers to DE 37 29 114 A1 (translation) which, pertinent portions of which were translated by applicants' German representatives and appear at pages following the signature page. These two German language documents make it clear that the specification as filed informs a person of ordinary skill to make and use the rejected terminology in the subject matter of the claims. Withdrawal of the rejection is respectfully solicited. Should the Examiner so desire applicants will provide certified translation of the German language documents for express incorporation in to the specification.

Applicants respectfully traverse the rejection of Claims as either anticipated, or under 35 U.S.C. 103 as obvious, over the reference to Smith et al. The distinction between Smith's apparatus disclosed in US patent no. 4,054,419 (Smith) and the instantly claimed invention is as follows:

> Smith teaches an apparatus for conducting a reaction between an aqueous fluid reductant reactant and air as a fluid oxidant reactant (Smith col. 40, lines 11 to 29). Consequently in all examples of Smith the apparatus is adapted for continuous systems, using a liquid reactant and a gaseous reactant (col. 10, line 49, 60, col. 11, line 4; col. 11. lines 58, 59; col. 12, lines 6 to 10; col. 13, line 10, 36; col. 15, line 17, 37, 60 etc.). Smith's housing is for a two-phase-system wherein one reactant is in a liquid phase and the other reactant is in a gaseous phase. In contrast the instant invention claims for a device for catalytic recombination of reaction gases, comprising a housing through which the gaseous mixture flows. In contradistinction to Smith the housing of the instant invention is for a gaseous mixture of reactants.

As already outlined with regard to Daish (US 5,035,875) the instant claims are for a recombination device comprising

- a first catalyst body surrounded by the retarding layer and positioned within said housing to receive said gaseous mixture and
- a second catalyst body positioned in the flow direction after said first catalyst body, the reaction gases having direct access to said second catalyst body.

In other words the first catalyst body surrounded by the retarding layer is arranged before the second catalyst body with regard to the flow direction. As a consequence the first and second catalyst body are arranged such that both reactant gases in the flow direction at first come in contact with the first catalyst body and only thereafter with a second catalyst body.

Smith fails to teach a preferred arrangement of his catalyst with regard to the flow direction. Although Smith teaches a downward or upward flowing (Smith col. 25, line 45) nevertheless there is no preference which part of Smith's catalyst is in contact with a reactant at first with regard to the flow direction. Smith's description makes no distinction between a first catalyst body and a second catalyst body with regard to their positioning in flow direction.

Inventive step:

Consequently there is a clear distinction between the catalyst recombination device of Smith, Daish on the one hand and the instant invention on the other hand. Instead Smith teaches away from the instant invention (Smith col. 33, lines 10 to 13): According to Smith's teaching a first reactant (a liquid) will wet only a part of the surface of the catalyst and the second reactant (a gas) will be in contact only with the other part of the surface. Consequently Smith's catalyst does not involve contact with both of the reactants. Clearly it is a very essential item of Smiths teaching, that the catalyst of Smith is in exclusive contact with one of the reactants (Smith col. 34, line 28 to 30). Therefore Smith already fails to teach a first or second catalyst body as defined by the instant invention. Smith teaches away from the instant invention and can not solve the problem of the instant invention.

The reason for this is of course, that Smiths wording of "catalyst" is strictly distinct from the "catalyst feature" of the instant invention. The examiners opinion that there is no distinction between the teaching of Smith and the apparatus or process of the instant invention has to be strictly opposed. It is true, that according to Smith the catalyst may be a plate or a solid unitary member (Smith col. 36, lines 29 to 32) however:

- firstly the encapsulation of Smith is directed to catalyst "particles" (Smith col. 40, lines 38 to 43 – "particles... having surface portions in contact with a hydrophobic substance... without being completely encapsulated by or encapsulating said hydrophobic material" – Smith col. 25, lines 48 to 54 "particulate carbon");
- secondly a bulk of such particles (like a powder – Smith col. 34, lines 19 to 23 and 29 to 31) are bunched in a disordered manner to form a surface, for instance in form of a floating catalyst (Smith col. 24, lines 28 to 31) or in a non-flooded condition (Smith col. 25, lines 49 to 54). In other words, the catalyst particles of Smith are disordered and are not at all arranged with regard to a flow direction.

Consequently Smith teaches away from the instant claims and can not involve problems to be solved by the invention as outlined in the instant application in paragraphs 12 and 13 and as described in detail with regard to fig. 3. In other words, whereas the instant claims are for a multi-stage-catalytic-oxidation by providing a catalyst system with several subregions which are impinged by the reactant gases one after another, the very opposite is true for the disclosure of Smith (Smith col. 35, lines 38 to 44): the respective portions of the Smith catalyst are directly in contact with separate reactants simultaneously.

The same arguments hold for the method claim 28 of the instant application.

As Smith fails to teach the above mentioned features and teaches away from the instant invention and furthermore can not solve the problems of the instant invention, the present invention is neither anticipated nor obvious over Smith.

The above mentioned arguments are also significant for the dependent claims. With regard to claim 29 Smith can not provide a zone wherein the hydrogen content of the gaseous mixture if reduced to less than 5% by volume. As mentioned above Smith teaches wetproof the particulate carbon by encapsulating a surface portion of a catalyst particle itself (Smith col. 25, lines 53, 54; col. 40, lines 38 to 43). However, the particles of Smith themselves are disordered and do not provide a macroscopic region of the instant invention. As the flow of the gaseous mixture is also of macroscopic extent, the hydrogen content is to be determined with regard to a macroscopic scale as for instance outlined with regard to fig. 3 of the instant application. As can be seen from fig. 3 and fig. 2 or fig. 3 and fig. 1 the subregions of the instant invention refer to the catalyst system as such and not to a catalyst particle of Smith. Consequently, applicants respectfully request reconsideration of the examiner's opinion with regard to the temperature of claims 32 to 35 has to be strictly opposed.

Reconsideration and an early Notice of Allowance are respectfully solicited.

Respectfully submitted,

Date: Oct 12 2004

Marina V. Schneller (Reg. No. 26,032)
Venable LLP
P.O. Box 34385
Washington, D.C. 20004-9998
Tel.: (202) 344-4051
Telefax: (202) 344-8300

Enclosures
- Translation of portions of DE 37 29 114 A1
- Excerpts of portions of Application No. 09/968586

DC2DOCS1/588042